

WHAT IS CLAIMED IS:

1. A discharge lamp comprising:
an envelope;
a discharge-sustaining fill sealed inside the envelope;
first and second electrodes for providing a discharge, at least the first electrode including a current carrying wire and a coil including at least first and second coiled structures:
the first coiled structure formed by winding an overwind wire around a first cylindrical member,
the second coiled structure formed by winding the first coiled structure around a second cylindrical member, the second coiled structure having a coil density of at least 95%; and
an emitter material deposited on the coil.
2. The discharge lamp of claim 1, wherein the coil density of second coiled structure is about 100%.
3. The discharge lamp of claim 1, wherein the coil density of second coiled structure is over 100%.
4. The discharge lamp of claim 1, wherein the second coiled structure has at least 80 turns per inch.
5. The discharge lamp of claim 4, wherein the first coiled structure has at least 200 turns per inch.
6. The discharge lamp of claim 5, wherein the first coiled structure has about 300 turns per inch.
7. The discharge lamp of claim 1, wherein the coil further includes a third coiled structure formed by winding the second coiled structure around a third cylindrical member.
8. The discharge lamp of claim 7, wherein the third cylindrical member has a diameter of at least 1.0 mm.

9. The discharge lamp of claim 1, wherein the third cylindrical member has a diameter of at least 1.2mm.

10. The discharge lamp of claim 1, wherein the coil is at least 10mm in length.

11. The discharge lamp of claim 1, wherein the emitter material comprises an oxide selected from the group consisting of barium, strontium, calcium, zirconium, and combinations thereof.

12. The discharge lamp of claim 1, wherein the amount of emitter material is 0.6-1.6mg/mm length of the coil.

13. A method for forming a coil for a fluorescent lamp, the method comprising:

forming a coil including:

winding an overwind wire around a current carrying wire to form a first coiled structure,

winding the first coiled structure around a cylindrical member to form a second coiled structure, the second coiled structure having a coil density of at least 95%; and

coating the coil with an emitter mix which, when activated, emits electrons when heated.

14. The method of claim 13, further comprising:

stretching the coil prior to the step of coating with the emitter mix to increase a length of the second coiled structure.

15. The method of claim 14, wherein the step of stretching includes:

stretching the second coiled structure until the coil has a coil density of less than 100.

16. The method of claim 14, wherein the step of stretching includes:

stretching the second coiled structure until the coil has a coil density of less than about 95%.

17. The method of claim 14, wherein the step of stretching includes:
stretching the second coiled structure to increase its length by at least 2%.
18. The method of claim 17, wherein the step of stretching includes:
stretching the second coiled structure to increase its length by at least 5%.
19. The method of claim 17, wherein the step of stretching includes:
stretching the second coiled structure to increase its length by up to about 20%.
20. The method of claim 13, further including:
increasing a length of the coil prior to the step of coating such that a spacing
between turns of the secondary coil is greater than the diameter of 90% of particles in
the emitter mix.
21. The method of claim 13, wherein the step of forming a coiled structure
further includes winding the second coiled structure around a second cylindrical
member to form a third coiled structure, the second cylindrical member having a
diameter of at least 1 mm.
22. An electrode which includes a coil formed by the method of claim 13.
23. A fluorescent lamp which includes an electrode coil formed by the
method of claim 13.
24. A method for forming a coil for a fluorescent lamp, the method
comprising:
forming a coil including:
winding an overwind wire to form a first coiled structure,
winding the first coiled structure around a cylindrical member to
form a second coiled structure of a first coil density, and
extending the second coiled structure to form a coil having a
second coil density which is less than the first coil density; and
coating the extended coil with an emitter mix which, when activated, emits
electrons when heated.